

REMARKS

Status of the claims:

- Claims 18, 19, 21-23, 26, 27, 29-32, 34-36, 39, 40, 42-47, 49, 50, 53, 54, 56-58, 61, 63, and 65-96.
- Claims 20, 24, 25, 28, 33, 37, 38, 41, 48, 51, 52, 55, 59, 60, 62, and 64 are temporarily withdrawn as directed to a non-elected species.
- Claims 18-20, 24-26, 28-33, 37-39, and 41-46 have been amended.
- Claims 47-96 are new.

A clean copy of the claims as amended herein is attached to this office action for the convenience of the Examiner.

I. Amendment to the Specification

The specification is amended herein to add a reference to the parent case and to make place in the specification the already-recognized priority claim to that parent case.

II. Comment Regarding Earlier Election of Species Requirement

The Examiner previous issued an election of species requirement. As a result of Applicant's election of a particular species, certain claims¹ stood temporarily withdrawn from consideration.

¹ Claims 20, 24, 25, 28, 33, 37, 38, and 41.

However, new counsel for Applicant has noticed that old counsel for Applicant has in previous responses erroneously considered these withdrawn claims as “canceled.” Of course, they are not canceled, but are merely withdrawn from examination until such time as generic claims are deemed allowable, at which point Applicant understands they will be examined by the Examiner on their merits.

In any event, Applicant wishes to clarify that these claims are not canceled. To be clear on this point, the withdrawn claims are denoted as “(withdrawn)” in the claims submitted herein. To the extent Applicant’s new claims are commensurate with claims to non-elected subject matter, they too are denoted as “(withdrawn).”

Although withdrawn, these claims are amended herein to render their format similar to those of the other claims.

III. The Rejections in the December 10, 2002 Office Action

A. Section 112 Rejections

The examiner has rejected various claims under 35 U.S.C. § 112, ¶¶ 1 and 2. Applicant has labored to fix these various problems.

Many of the Examiner’s concerns stem from the order in which the various steps in the claimed methods are to be performed. Applicant has addressed this problem by making implicit in some of the claims (e.g., claim 31) that certain steps are necessarily preceded by earlier recited steps. In other instances, the Applicant has changed the claims to delete certain steps, turning these limitations into structural limitations. While perhaps broadening the claims, Applicant believes he has addressed the examiner’s concerns.

With these amendments, Applicant submits that the claims are now clear and definite, and supported by the specification. The Applicant notes that the Examiner does not contend that Applicant's specification does not enable one skilled in the art to make and use the invention, but merely takes issue with the manner in which Applicant has claimed the invention. In any event, Applicant now submits that the claims are suitable under 35 U.S.C. § 112.

"Spin on" processing (claims 29, 42) is well known in the art to those of skill, and is not an ambiguous term. It refers to spinning a solution of the material to be deposited onto a substrate and then allowing the solution to dry to leave the material. See USP 6,530,340 for example. "Photo-define and -etch" also has a well known meaning in the art, and refers to using photolithography (masking) to define desired structures (e.g., using a photoresist) in a material followed by etching to remove unwanted portions of the material.

B. Prior Art Rejections

In this response, the Applicant only justifies the patentability of the independent claims, and specifically claim 18 as that is the only independent claim that has been rejected in light of the prior art. As the examiner will appreciate, should the independent claims be patentable over the prior art, narrower dependent claims must also be patentable. Accordingly, the patentability of the dependent claims is not separately addressed.

Claim 18 has been rejected as obvious under 35 U.S.C. § 103 in light of USP 4,513,055 ("Leibowitz") in view of USP 6,274,932 ("Mikagi").

Applicant respectfully disagrees that these references show a lack of patentability of claim 18 (or narrower independent claim 31 for that matter). First, claim 18 is drawn to a manufacture of a *socket*. Leibowitz, by contrast, is directed to manufacture of a *printed circuit board*; and Mikagi is directed to manufacture of an *interconnect structure for an integrated circuit device*. Neither of these devices disclose anything regarding sockets, and it is therefore not surprising that they do not show the obviousness of claim 18.

In any event, for a combination of references to render obvious a claim, the combination must (amongst other things) disclose or suggest all of the limitations of the claim. See MPEP 2143. Even assuming for the moment that the combination of Leibowitz and Mikagi is proper and that one of ordinary skill in the art would be motivated or suggested to combine them, the fact remains that neither of these references teach the “negative coefficient of thermal expansion” limitation of claim 18.

Mikagi discloses or suggest no material having a negative coefficient of thermal expansion. Neither does Leibowitz. Leibowitz does disclose a fabric 14 formed in a resin 16 for forming a printed circuit board, but this composite material is not a material that exhibits a negative thermal coefficient of expansion, i.e., a material which shrinks upon heating. The whole goal of Leibowitz is to form a printed circuit board that matches the coefficient of thermal expansion of the ceramic integrated circuits which will be placed on the board so that thermal mismatch does not cause the two to crack at their boundary. See Col. 2, ll. 6-18; Col. 1, ll. 50-58. To achieve this goal, Leibowitz discloses a printed circuit board composite 10 comprising two different yarns 18, 20 woven into a resin. Even though a yarn (Kevlar) with a negative coefficient of thermal

expansion was used in the composite, the overall composite material for the printed circuit board exhibited a *positive* coefficient of thermal expansion, see Col. 5, ll. 7-21, which is not surprising because the ceramic chips to be mounted on these boards (and to which thermal matching was desired) also exhibit a positive coefficient.

Never does Leibowitz disclose or suggest that the overall composite—the structure pertinent to Applicant’s claims—exhibit a negative coefficient.

It is therefore clear that even when taken in combination, Leibowitz and Mikagi does not disclose or suggest all of the limitations of claim 18. Therefore, they cannot render claim 18 obvious. See MPEP § 2143.

Moreover, the Examiner apparently considers “layers” 18 and 20 in Leibowitz to comprise Applicant’s claimed first and second layers. But as just noted, these “layers” in Leibowitz comprise the two different yarns interwoven in the composite. They therefore do not comprise stacked layers as claimed in claim 18. One is not formed on top of the other as claimed.

Moreover, the Examiner does not show that these layers 18 and 20 comprise an “aperture” as claimed in claim 18. The Examiner contends that an aperture is taught by Mikagi, but does nothing to justify why one of ordinary skill in the art would combine Leibowitz and Mikagi to arrive at claim 18, as the examiner must do as part of his *prima facie* case of obviousness. Mikagi deals with integrated circuit fabrication, not printed circuit board fabrication, and it is therefore simply not the case that one of ordinary skill would look to these very different references and technologies and combine them. Moreover, as Leibowitz desires to form a composite structure having an overall positive coefficient, it is not clear why Mikagi would suggest to make an aperture through the two

different types of yarn. In short, making of aperture in the two yarns seems counterintuitive, and it is therefore unclear why Mikagi would suggest modifying Leibowitz in this fashion.

Accordingly, the combination of Leibowitz and Mikagi is improper, and moreover even if they are combine to not disclose or suggest all of the limitations of Applicant's claims. They therefore do not render claim 18 obvious. Moreover, they additionally do not render narrower claim 31 obvious, which recites additional steps for heating, cooling, etc. to capture the pins of an electronic device.

III. Applicant's New Claims 47-96

Applicant submits that new claims 47-96 are compliant with 35 U.S.C. § 112, and are patentable in light of the prior art relied upon by the Examiner. Applicant does wish to point out that claim 67 and 78 are similar, although claim 78 is written in a narrow "closed" format as evidenced by the transition phrase "consisting of."

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In light of the foregoing, Applicant submits that pending claims 18, 19, 21-23, 26, 27, 29-32, 34-36, 39, 40, 42-47, 49, 50, 53, 54, 56-58, 61, 63, and 65-96 are patentable, and request that examination proceed as to the withdrawn claims so that a Notice of Allowance can issue.

Please feel free to contact the undersigned with any questions.

Respectfully submitted,



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